

DOCUMENT RESUME

ED 269 408

SP 027 603

TITLE Data Needs on Teacher Supply and Demand. ERIC Digest No. 6.
INSTITUTION ERIC Clearinghouse on Teacher Education, Washington, D.C.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE 86
CONTRACT 400-83-0022
NOTE 13p.
PUB TYPE Information Analyses - ERIC Information Analysis Products (071) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Employment Patterns; *Enrollment Projections; *Information Needs; Teacher Certification; Teacher Recruitment; *Teacher Shortage; *Teacher Supply and Demand

ABSTRACT

This digest focuses upon what is known about current and impending needs for teachers, data on which this knowledge is based, and what needs to be done to create a solid foundation for projections on future needs. It is pointed out that the data needed to describe the market for teachers vary according to how and by whom the information is used. A description is given of seven users of information on the supply and demand of teachers. Four national agencies that provide the basic information for research in the area of teacher supply and demand are listed. A brief discussion is presented of some professional organizations that are engaged in examining the data requirements for the prediction of teacher demands in their fields of concern. A bibliography is included. (JD)

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DATA NEEDS ON TEACHER SUPPLY AND DEMAND

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SP027603

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This publication was prepared with funding from the Office of Educational Research and Improvement, U.S. Department of Education, under contract no. 400-83-0022. The opinions expressed in this report do not necessarily reflect the positions or policies of OERI or the Department.

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DATA NEEDS ON TEACHER SUPPLY AND DEMAND

Is there a shortage of teachers today—or a surplus? What about next year, or five years from now, or ten? Without valid, reliable, and comparable data on the supply and demand of teachers nationwide, generalizations about national teacher shortages and surpluses are difficult to support.

Changes in population trends have sparked speculation on the supply and demand for teachers. At stake are the interests of would-be teachers, teacher education institutions, state agencies, school boards, and the public. But data on the supply and demand of teachers remain largely uncollected, scattered among local, state, federal, and private agencies.

The following describes what is known about current and impending needs for teachers, data on which this knowledge is based, and what needs to be done to create a solid foundation for projections.

Supply and Demand, Shortage and Surplus

Demand for teachers stems from five basic situations according to

the National Education Association (1982) and the Center for
statisticas (Plisko and Stern 1985). Increases in student enrollment
necessitate opening more classes or schools. Changes in school policy
expand curriculum offerings. Qualified teachers are needed to replace
those with temporary or provisional certification. Senior teachers
retire. Younger teachers quit to raise families, move to other
schools, continue graduate work or change careers. Demand can be
reduced by decreased student enrollment, reductions in curriculum
needs, delayed retirement, and low incidence of teacher mobility.

The supply of teachers comes from three general sources:
certified graduates of state-accredited teacher education programs who
seek teaching jobs, the reserve pool of former teachers who have
maintained certification and intend to reenter the profession, and
persons who wish to teach and are academically qualified to be
certified on a temporary, provisional, or emergency basis.

A teacher shortage occurs when the demand for teachers exceeds the
supply of teacher applicants with requisite certification and
qualifications. A teacher surplus occurs when the supply of qualified
teachers actively seeking employment is greater than the position
vacancies in their areas of certification.

Meaningful discussion of teacher supply and demand must be tied to
certification and verifiable expertise and to geographic location (Akin
1985; Berryman 1985). Significant differences exist among states,
counties, and even school districts in the availability of and the
demand for teachers certified for different subjects and school grade

levels.

The Users and Uses of Supply/Demand Information

The data needed to describe the market for teachers vary according to how and by whom the information is used. The following categorizes seven users of information on the supply and demand of teachers.

1. Institutions of higher education use teacher supply and demand trends to develop programs of teacher preparation, to recruit and advise students on career potential, and to maintain cooperative programs with school districts and local school personnel.
2. Local school districts use supply and demand information for recruitment, teacher assignments, staff development programs, budgetary decisions, and use of facilities.
3. State education agencies use supply and demand data for educational policy development, fiscal proposals and allocations, and certification decisions (such as the institution of emergency certification).
4. Federal and other national education agencies base budget and policy decisions on teacher market estimates.
5. Teachers and administrators use the information to formulate their own career plans--to move to another area, to pursue an

advanced degree, to change careers.

6. Public groups, such as professional organizations and media, use supply and demand data to promote social agendas and to raise public concern for education issues.
7. Individuals, such as researchers, students, and voters, need reliable supply and demand data to make informed judgments in their areas of interest.

That each of these groups needs access to reliable data suggests that supply and demand data be compiled at a national dissemination center. In addition, the diverse uses to which these data are applied require that they be retrievable in precisely defined units. Because the information comes from local school districts, collecting it is an immense, complex effort that can be supported only at the national level, according to Berryman (1985) and the Committee on National Statistics (1985).

A Question of Data

Data on student enrollment are the only widely available figures related to teacher supply and demand. Enrollment in elementary and secondary schools according to grade level is the basis for teacher demand studies. Enrollment in teacher preparation programs at colleges and universities provides the foundation for teacher supply studies.

Both kinds of data, broadly categorized, are collected by the U.S.

Department of Education's Center for Statistics (CS, formerly the National Center for Education Statistics, NCES). Using population studies from the U.S. Bureau of the Census, the Center for Statistics projects student enrollment. A comparison of Simon and Frankel (1976) with Plisko and Stern (1985) shows CS's predictions to be fairly reliable over a five- to ten-year span. Unforeseen population mobility and immigration trends complicate the predictions.

Student enrollment provides only a fraction of the information needed to study teacher supply and demand. Projections of teacher demand also are dependent upon predictions of the supply of appropriately qualified teachers. Filling teacher vacancies requires applicants specifically qualified for the positions open.

Much more supply and demand data are available which have been categorized by geographical and subject areas, but these remain uncollected. Collection methods and usable formats for data storage and categorization have yet to be designed. Figures necessary to calculate a major part of potential teacher supply by geographic area and well-defined subject of expertise could be abstracted from enrollment in teacher preparation programs, but most states do not collect these figures. Another estimation of teacher supply exists in teacher certification records at state departments of education; however, because states use many different criteria and procedures for certification, there is wide variance in just what certification means in terms of a teacher's preparation.

Two categories of data are essential to determine accurate

estimates of supply and demand: a precise list of teacher vacancies and the certification records of teachers hired to fill those vacancies. These data must show the need for teachers by school grade, academic subject, and geographic location to be applicable to all kinds of users and uses.

A record of the qualifications of the teacher hired to fill each specified vacancy would provide precise information on shortages. Was the physics teacher vacancy filled by a teacher certified in physics? Or was the teacher hired certified in general science because no physics teacher could be found? Did the third grade teacher who transferred from the high school that closed last year ever have any elementary teacher preparation? Obtaining this type of information would be a monumental task, but the precise definition of the data would ensure valid, reliable, and comparable data nationwide. Precision and consistency in defining teacher certification requirements used by the states is essential for valid data (Berryman 1985; Committee on National Statistics 1985).

Current Sources of Information

Four national agencies provide the basic information for research in the areas of teacher supply and demand.

1. The Center for Statistics compiles and publishes "The Condition of Education: A Statistical Report." Demand-related data, such as K-12 student enrollment, are sorted by state and by elementary and secondary schools, but have not been further

categorized by grade levels and smaller geographic areas. Student enrollment in particular subject areas has yet to be explored. Supply data includes studies of graduates of teacher education programs with follow-up reports on employment status one to five years after graduation. These figures are geographically categorized. In the past, the Center has done studies on teacher turnover categorized by broadly defined subject areas and grade levels. These studies did not receive significant geographical treatment.

2. The Division of Occupational Outlook of the U.S. Department of Labor gives current and projected demand and supply data for kindergarten, elementary, and secondary school teachers in "Occupational Projection and Training Data." This is the listing of statistical findings on which the OCCUPATIONAL OUTLOOK HANDBOOK is based. There is no breakdown of teacher categories according to grade level, academic subject, or geographic area.
3. The National Education Association complies and publishes "Teacher Supply and Demand in the Public Schools" which provides an extensive source of raw data from nationwide teacher supply and demand studies. Both supply and demand data are separated according to academic subject.

Teacher supply data include numbers of students in teacher preparation programs according to school grade levels and academic areas. This information is used, along with studies of

the teacher reserve pool and teacher turnover and retirement projections, to form the basis for statistical predictions of teacher supply. Because all students who become certified teachers do not become teacher applicants, the two groups are differentiated.

The NEA data are not separated geographically and the categories used for data collection differ from year to year, making trend analyses and projections difficult. The most recent report available is 1982-83; the next report is expected in mid-1986.

4. The Association for School, College and University Staffing (ASCUS) has published "Teacher Supply/Demand" annually since 1976 (for example, Akin 1985). The contents are based on an opinion survey of a representative sample of teacher placement officers. The results show the perceived degree of teacher supply in 35 academic areas. Data are separated into nine geographical areas plus Hawaii and Alaska.

These survey results concur with the NEA reports and with teacher supply and demand reports issued by state departments of education (discussed below), documenting present shortages of secondary mathematics, science, and bilingual teachers and the future demand for elementary school teachers.

In an unpublished study of current data available, the Rand Corporation found that fewer than a dozen states publish in-house

statistical records on teacher supply and demand. The bibliography lists four samples of state publications: Washington (Brouillet 1984), California (Cagampang et al. 1985), Texas (Texas Education Agency 1984), and Utah (Utah State Office of Education 1984). Each covers current and projected demand for teachers specified by academic area of certification and geographic area by county or school district. Each quantifies and qualifies areas of shortage/surplus by documenting the percentage of teachers teaching outside their areas of academic training and by examining the reserve pool's probable activity. State reports are not widely available and are seldom used in the literature on teacher markets.

Where to From Here?

The need for accurate nationwide data has spurred some professional organizations to examine the data requirements for the prediction of teacher demands in their fields of concern. Many publications question whether a teacher shortage--present or impending--can be based on currently available data (Berryman 1985).

The National Research Council's Commission on Behavioral and Social Science and Education formed the Committee on National Statistics to launch a project on the study of supply and demand for precollege mathematics and science teachers. This project, funded by the National Science Foundation and the Center for Statistics, examined the available data and found that too little data exist to formulate conclusions on teacher demand and supply in any area. The committee is

compiling a description of data that need to be collected for adequate research on supply and demand. The project also includes a study of proposed data collection and maintenance procedures and the exploration of statistical modeling and data processing methodologies. The next committee report is expected this fall.

The Institute for Educational Leadership (IEL) initiated an independent study of teacher market data last year. This study, funded by the Ford Foundation, focuses on establishing criteria for data to be gathered and on proposing a means of collecting national data from state departments of education, school districts, and other agencies involved in the teacher market. Like the Committee on National Statistics, IEL is concerned with creating and implementing standard definitions for data categories and standardization of data collection.

Last year, the Center for Statistics contracted with the Rand Corporation to redesign the national data base on schools and staffing. The general goals of the redesign are to institute dependable collection methods, gather data more applicable to the current issues of schooling and staffing, and present these data in formats more useful to researchers and school facility and policy planners.

Objectives specific to the concerns of teacher supply and demand studies include the identification of data categories needed to estimate key factors describing the teacher population and the acquisition of data needed to describe and monitor trends in school programs, curricula, and staffing arrangements. More information on the progress of the redesign should be forthcoming later this year.

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